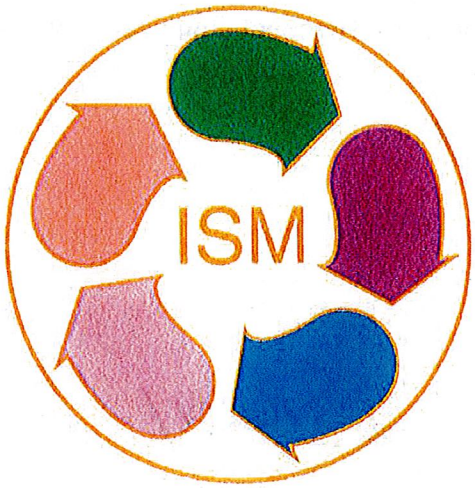
Energy Technologies Area (ETA)

Integrated Safety Management Plan



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Energy Technologies Area
Integrated Safety Management Plan

Rev 14- 4/22/16

1. Purpose

The purpose of this Integrated Safety Management Plan is to ensure that a safe and healthful workplace is provided to Energy Technologies Area (ETA) employees, affiliates, subcontractors, and the public. This is accomplished through the implementation of the elements identified in this ISM Plan.

2. Scope

The Energy Technologies Area (ETA) performs analysis, research and development leading to better energy technologies and reduction of adverse energy-related environmental impacts. Our work increases the efficiency of energy use, reduces its environmental effects, provides the nation with environmental benefits, and helps developing nations achieve similar goals through technical advice. The Energy Technologies Area consists of four divisions:

- Building Technology and Urban Systems (BTUS)
- Energy Analysis and Environmental Impacts (EAEI)
- Energy Storage and Distributed Resources (ESDR)
- Cyclotron Road (CY)

ETA has its operations located in LBNL Buildings 31, 33, 46, 50, 51F, 60, 62, 63, 64, 70, 71, 71T, 75C, 90, and FLEXLAB. There are also other off-site research locations such as the LBNL Potter Street building. The ETA Safety Manager maintains a listing of all ETA work areas in each of these buildings.

The following publications are applicable to the scope of ETA's Integrated Safety Management Plan:

- LBNL PUB-3851 "Worker Health and Safety Program"
- LBNL Pub-3111 "Quality Assurance Program Manual"
- LBNL PUB-3140 "LBNL Integrated Safety Management Plan"
- LBNL PUB-3000 "Health and Safety Manual"
- LBNL PUB-5341 "Chemical Hygiene and Safety Plan"
- LBNL PUB-3092 "Guidelines for Generators of Hazardous, Radioactive and Mixed Wastes"
- RPM-ES&H Core Policy

3. Integrated Safety Management

Integrated Safety Management (ISM) is a core principle used within ETA. ETA has integrated each of the five functions and seven principles of ISM from the LBNL Integrated Safety Management Plan (PUB-3140).

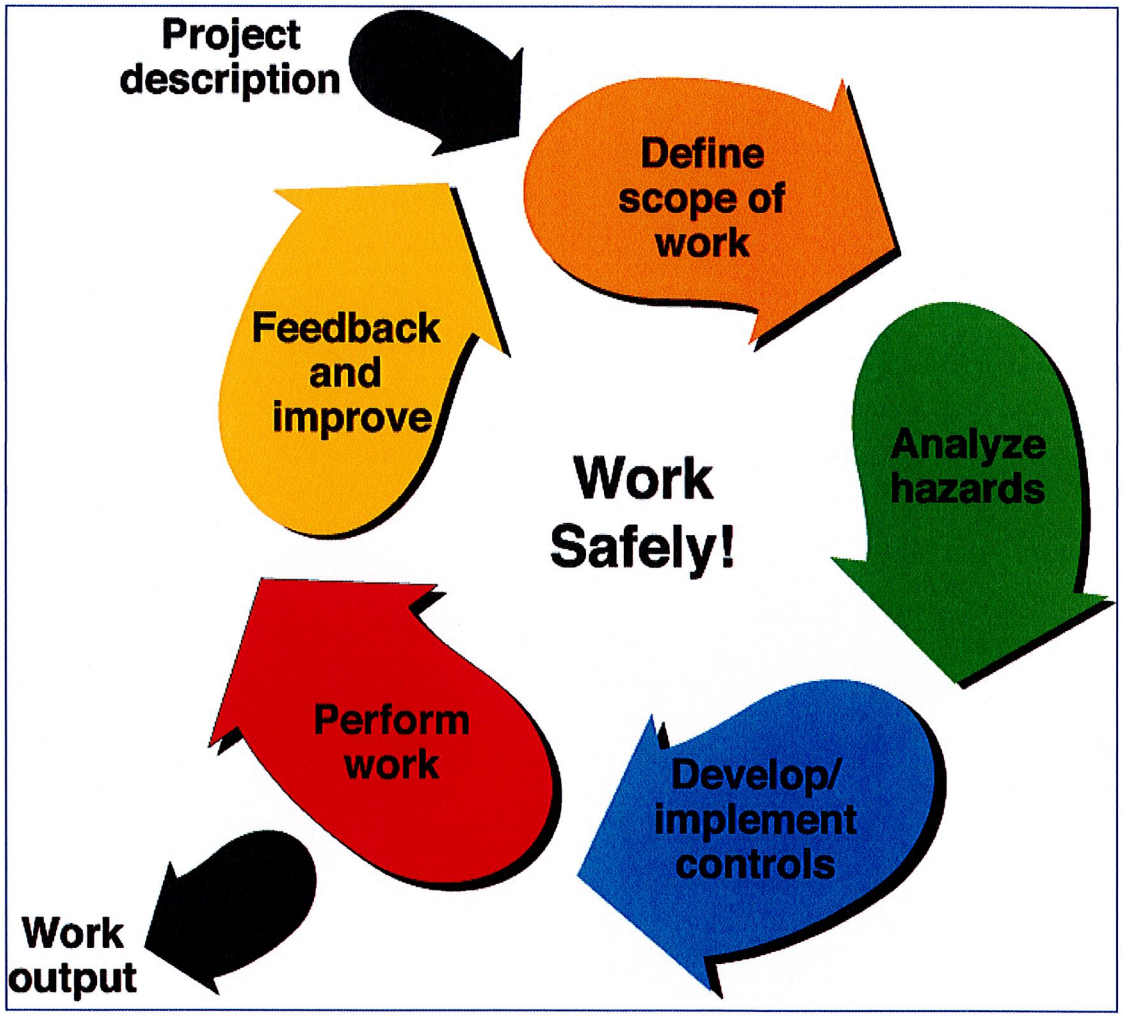
The five functions are:

(1) Define the scope of work
(2) Analyze the hazards
(3) Develop and implement hazard controls
(4) Perform work within controls
(5) Provide feedback and continuous improvement

These five core ISM functions are accomplished by applying the seven guiding principles of ISM:

(1) Line management responsibility for safety
(2) Clear ES&H roles and responsibilities for managers and staff
(3) Competence commensurate with responsibilities
(4) Balanced priorities
(5) Identification of ES&H standards and requirements
(6) Hazard controls tailored to the work being performed
(7) Operations authorization

The following is a diagram of the ISM work cycle:



Daily ISM

The following practices must be followed on a daily basis:

- Actively perform ISM and work planning each day by making sure the chemicals, tools, machines and equipment are appropriate for the task.
- Check laboratory equipment prior to starting work, and make sure it is in good condition and functioning properly.
- Perform work within the parameters defined by this Work Activity. This includes established pressures, temperatures, quantities, and set points.
- Ensure all safety controls required by this Work Activity are available and in use. This includes adequate personal protective equipment and engineering controls.

- Immediately report any equipment, machine or tool failures, deviations from normal operations, or other deficiencies to the Activity Lead or Principal Investigator.
- Decommission defective equipment immediately if the failure or deficiency may affect its safe operation. Attach a "DEFECTIVE DO NOT USE" tag to prevent use until repaired.

Side Work

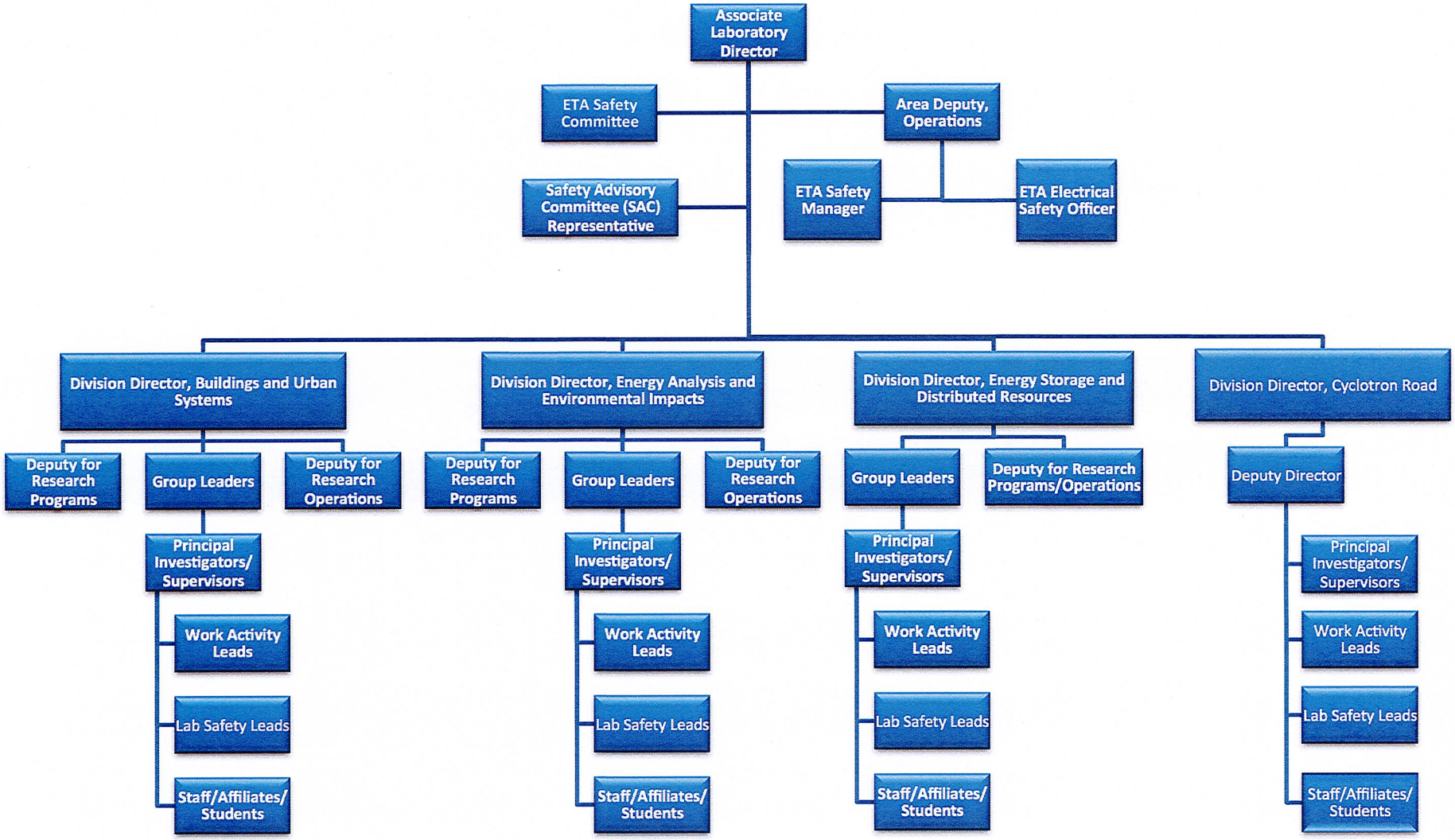
"Side Work" is not permitted. All work performed must be reviewed and authorized within the scope of the assigned WPC Work Activity. If you are not sure if a work task is within the scope of your Work Activity, check with the Activity Lead or Principal Investigator PRIOR to performing the work.

4. Area/Division Safety Structure

The ETA Environmental Safety & Health (ES&H) program structure consists of the Associate Laboratory Director, Area Deputy for Operations, Division Directors, Deputy Division Directors, ETA Safety Manager, ETA Electrical Safety Officer, ETA Safety Committee, and the SAC Representative.

Each division conducts research in one or more buildings and rooms, Principal Investigators (PIs), and Activity Leads. Each lab or shop (Technical Area) has a Lab Safety Lead assigned to coordinate day-to-day safety issues.

The following is the ETA safety organization chart:



5. Roles and Responsibilities

The following are roles and responsibilities for the various functions within ETA:

a. Associate Laboratory Director

- Assure that ES&H policies and programs are established and implemented v ETA.
- Ensure that ETA provides sufficient resources for ES&H efforts.
- Lead the discussions on relevant safety issues at Area senior management m
- Demonstrate line management commitment to safety, health, and environme periodically walking through ETA workspaces.
- Establish committees as necessary to consider ES&H problems and recomm solutions to Area management.
- Appoint the ETA Safety Committee chair and Safety Advisory Committee (representative.

b. Area Deputy, Operations

- Manage operational matters within the Area including safety.
- Lead the Area Research Operations Council, which is a resource for managi matters in the divisions.
- Supervises the ETA Safety Manager.
- Participates in the Area Safety Committee.

c. Division Directors

- Maintain overall responsibility for safety within their respective divisions.
- Lead discussions on relevant safety issues at their division meetings.
- Perform at least one safety walkthrough each year for areas under their resp
- Provide the necessary resources within the division to ensure a safe and heal environment.
- Ensure the ETA employee performance assessment process is used to hold e accountable for their ES&H obligations, responsibilities, and performance.
- Review the status of key division health and safety metrics on at least a quar basis.

d. Deputy Division Director, Research Operations

- Support operational matters within their division including safety.
- Ensure that line managers within their department understand and follow the provisions of this Plan.
- Ensure that all work areas within their division are operated in accordance w LBNL ES&H requirements.
- Ensure that Project Leads are assigned and updated as needed for all Work A within their division.
- Identify personnel within their division that support key safety activities suc Building Emergency Team (BET), Ergonomics Advocates, and Safety Com members.
- Participate in the Research Operations Council, which is a key resource for safety matters in the division.

e. Deputy Division Director, Research Programs

- Support research programs within their division including consideration of safety requirements as new programs are developed.
- Ensure that research performed within their department is in accordance with LBNL ES&H requirements.
- Participate in the Division Research Council, which is a key resource for managing safety matters in the division.

f. ETA Safety Manager
- Assist the ETA Associate Laboratory Director and senior staff in establishing and maintaining an effective safety culture at all levels of the Area.
- Manage the ETA's annual Self Assessment process.
- Serve as a point of contact for Area staff regarding implementation and interpretation of ES&H policies, procedures, and programs.
- Conduct inspections and monitoring of ETA work activities to ensure that work is conducted in a safe and environmentally sound manner.
- Ensure that corrective actions for EH&S issues within the division are identified, assigned, and completed in a timely manner.
- Coordinate ETA accident and near-miss investigations.
- Oversees implementation of the Work Planning and Control "Activity Manager" system.
- Ensure that ES&H training is implemented within ETA.
- Develop and delivers ETA-specific training.
- Ensure that compliance records and documentation are kept up to date.
- Coordinate the ETA ergonomics program.
- Generate regular ES&H communications to ETA personnel.
- Provide support to the Safety Committee Chair and participates in Safety Committee activities.
- Provide regular ES&H metrics updates to the ETA senior management.
- Maintains the ETA Safety website.
- Consult with the ES&H Division Liaison as needed.

g. Principal Investigators and Supervisors
- Ensure that all activities in their labs and related facilities are carried out in accordance with LBNL and ETA safety and health policies and procedures.
- Ensure work areas are well maintained and adequately supervised.
- Perform regular walkthroughs of work areas to ensure all personnel are following good safety practices and proper safety equipment is made available.
- As Work Planning and Control "Project Lead", assigns and oversees "Activity Leads" as needed.
- Ensure that personnel are assigned to the appropriate Work Planning and Control "Work Activity" and they complete all required training.
- Ensure that all employees working within their work areas have received adequate "on the job" training on hazards and needed controls.
- Participate in "Incident Review Teams" for any accidents involving their personnel.
- Meet with assigned personnel at least annually to discuss safety performance and goals as part of the annual performance review process.

- Ensure that all electrical equipment is maintained in good condition. Defective equipment must be immediately taken out of service until repaired.
- Ensure that new or modified equipment is reviewed for hazards and controls prior to being used.
- Ensure that personnel follow good housekeeping practices in their work areas. This includes regular clean out of unwanted samples, chemical containers, and unused electrical equipment.
- Ensure that all off-site work is conducted safely and within regulatory requirements.

h. Staff, Affiliates, Students, Post-Doc, Rehire/Retiree
- Conduct their work activities safely and in an environmentally sound manner at all times.
- Know how to respond to emergencies and incidents. Evacuate work areas when emergency alarms sound.
- Immediately call **X911** in the event of a chemical spill, fire, or serious injury.
- Immediately stop any activities, including the activities of others, which pose an imminent danger to personnel or the environment, and report these activities to their supervisor or activity lead (see Stop Work policy).
- Review, understand, and sign their assigned WPC Work Activity at the required frequency (1-3 years), follow all listed hazard controls, and complete all required training.
- Perform work only for which they are authorized and qualified.
- Promptly report all injuries, unsafe conditions, safety violations, and near-miss incidents immediately to their Area Safety Lead or supervisor.
- Report promptly to LBNL Health Services in the event medical attention is needed.
- Keep work areas clean and orderly at all times.
- Inspect tools and equipment prior to use.
- Wear proper personal protective equipment when required.
- Follow proper safety precautions when working with electrical equipment. Report damaged or malfunctioning equipment to their supervisor. Do not use until repaired.
- Practice good work postures to avoid ergonomic related injuries. Report any discomfort promptly to their supervisor or activity lead.

i. Work Activity Lead
- Assigned by the Project Lead (Principal Investigator or Supervisor) to oversee work being performed. The work can be defined by a specific work area and/or by types of equipment or processess used.
- Develop assigned Work Activities in the Activity Manager system. This includes the preparation of a statement of work outlining the scope of the activity, determination of the hazards associated with the work, and designating the controls needed to mitigate the hazards.
- Update assigned Work Activites as needed to ensure they reflect the work being performed.
- Assign workers to Work Activities. This includes establishing the work authorization levels based on the worker's level of competence and hazards of the work being performed:
    - Not Authorized to Work

  - Work with Supervision
  - Work Unsupervised But Not Alone
  - Work Alone
- Determine what On the Job Training (OJT) is needed and prepare assigned workers to safely carry out the defined scope of work.
- Ensure all supplemental work authorizations are obtained and maintained. This includes radiation work authorizations, laser work authorizations, and hot work permits.
- Communicate any changes in Work Activity scope, hazards, or controls to all affected workers.

j. Lab Safety Lead
- Ensures that day-to-day work activities in assigned technical work areas are conducted safely and within established work authorizations.
- Ensures that employees working within their assigned work areas are aware of work hazards and controls. This includes use of personal protective equipment, engineering controls (hoods and glove boxes), and emergency procedures.
- Report any health or safety concerns identified to their supervisor.
- Ensure that the door Hazard Placard information is up to date.
- Ensure that any Satellite Accumulation Areas (SAA) for hazardous wastes generated in their work areas are properly maintained.
- Ensure that hazardous materials located in the area are properly stored.
- Ensure that the chemical inventory entered into the Chemical Management System (CMS) is updated regularly.
- Ensure the technical area is well maintained and good housekeeping is being followed.
- Ensure that personnel protective equipment such as safety glasses, gloves, and lab coats are made available to workers in the area.
- Ensure that all equipment is properly maintained in a safe condition. Any defective equipment just be placed out of service until repaired.
- Ensure that emergency equipment in the area is available and maintained. This includes chemical spill supplies. Emergency Response Guide, emergency shower/eyewash, and fire extinguisher.

k. Safety Committee Chair
- Establish ETA Safety Committee meetings and agenda.
- Lead ETA Safety Committee meetings and ensure meeting minutes are distributed to committee members and senior management.
- Encourage feedback and participation by Safety Committee members.
- Provide consultation on strategic planning of the ETA safety program.
- Provide consultation on any proposed changes in ES&H policies or procedures.
- Ensure that the ETA Integrated Safety Management Plan is regularly reviewed and updated as needed.

l. Building Manager (each ETA building)
- Complete required Building Manager training courses.

- Advise Facilities Division regarding building hazards relevant to planned construction/maintenance work.
- Coordinates building construction and maintenance activities within assigned buildings.
- Oversee the space management of their buildings.
- Serve as building representative/escort to visitors and compliance inspectors.
- Ensure the emergency preparedness of their buildings.
- Identify a Building Emergency Team (BET) Lead. If a Lead is not identified, the Building Manager will assume BET Lead responsibilities.
- Maintain a "Building Emergency Plan" and make available to building occupants and BET.

m. Building Emergency Team (BET) Members
- Complete required BET training courses.
- Participate in planned BET drills and pre-planning meetings.
- Assist employees when buildings are being evacuated.
- Provide primary first aid emergency care during building emergencies.
- Assist emergency responders such as the fire department.
- In the absence of the BET Lead and Building Manager, assume the BET Lead position.

n. Qualified Electrical Worker (QEW)
- A Qualified Electrical Worker (QEW) is someone who has the demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations, has received safety training to identify and avoid the hazards involved, and has been approved by the Electrical "Authority Having Jurisdiction" (AHJ) for Safe Work Practices.
- Any person who is not designated as a QEW is considered a non-QEW.
- Only QEW's are authorized to perform electrical work. This includes both live and de-energized work for constructing, maintenance and repair of equipment.
- QEW's are classified depending primarily on the type of utility power feeding the equipment they are working on. For the most part, QEW's working for ETA are considered QEW Level 1 (50-300 Volt AC, 50-60 Hz power provided there is no arc flash hazard)

o. ETA Electrical Safety Officer (ESO)
- Person designated by the ETA Associate Laboratory Director who oversees the ETA electrical safety program.
- Assist ETA researchers and QEW's in properly constructing electrical equipment used for performing research activities.
- Act as a resource to ETA personnel for electrical-related concerns.
- Review and approve all ETA Electrical Safe Work Procedures.
- Reinforce good electrical work practices. Provide communications to ETA personnel on electrical safety issues.
- Perform or assign workplace condition inspections for electrical hazards in ETA work areas.

- Perform or assign surveys of electrical equipment and enter non-NRTL equipment into the Electrical Equipment Database for inspection. Provide follow-up on equipment that has failed inspection.

p. EHS Division Liaison
- An EH&S Division worker who serves as a point of contact to ETA.
- Request that appropriate technical support be provided to implement and interpret LBNL E&SH policies.
- Know the customer division's work activities, personnel, and associated hazards. Assists in hazard identification and the development of controls appropriate to the hazard and work being performed.
- Provide consultation to allow for resolution and closeout of the customer division's ES&H issues or concerns.
- Develop and/or leads cross-functional ES&H teams when necessary to assess complex operations and equipment.
- Participate in a customer division's self-assessment as requested and other ES&H assessments as required.
- Serve as the lead to coordinate an EH&S Division review of formal authorizations (e.g., WPC Activity Manager), which involves coordinating feedback with subject matter experts (SMEs) and the customer, and overall approvals.
- Participate in incident reviews of illnesses, injuries, accidents, and other safety and environmental incidents as requested by the incident investigation manager.
- In relation to assigned divisions or facilities, and in collaboration with his or her respective Division Safety Coordinators (DSCs), supports as requested, the elements of the ES&H program.

q. Subcontractors
- Subcontractors are non-LBNL personnel performing hands-on work for ETA. Hands-on work includes:
  - Use of hand or power tools
  - Use of ladders or scaffolding
  - Electrical work
  - Servicing equipment
  - Handling of hazardous materials
  - Material handling
- Complete the required SJHA documentation and submit to the requesting supervisor or activity lead.
- Follow all requirements listed in the SJHA. See: https://sjha.lbl.gov
- Obtain proper LBNL authorizations prior to performing any hands-on work.
- Understand and follow the safety and health requirements that apply to their work.
- Observe and follow all posted warning signs.
- Notify their ETA contact in the event of any safety concerns or identification of a safety hazard.

r. Matrix Employees
- Matrix employees from other divisions have home and host division supervisors with complementary responsibility for the employee's safe work practices and training.

- The host supervisor is responsible for ensuring matrix employees have received appropriate training to perform their job safely for the tasks assigned.
- The home supervisor will ensure that the matrix employee has received appropriate job-specific training from the host supervisor as well as training requirements generated by the Activity Manager process.

s. Workers Working Off-Site

- Off-site workers must conduct work in a manner that complies with LBNL and ETA environment, safety and health (ES&H) policies and procedures.
- Off-site workers must conduct work in a manner that complies with all applicable regulatory requirements for the particular area (jurisdiction) work is being performed.
- Off-site workers performing work at another national laboratory or institution will comply with the ISM Program, policies, and procedures of that institution.
- The ETA Safety Manager must be notified of any new projects involving off-site work prior to performing the work. This can be accomplished by the submittal of an "Off-Site Project Hazard Assessment" form. Forms are available on the ETA Safety Website or through the Division Safety Manager.
- The employee supervisor and LBNL Health Services must be notified immediately of any off-site project related injuries.

t. Workers Working at UC Berkeley

- ETA workers performing work at the UC Berkeley campus must conform to the *"Partnership Agreement Between UCB and LBNL Concerning Environment, Health and Safety Policy and Procedures"* dated March 15, 2004, as provided in the LBNL Institutional ISM Plan: http://www.lbl.gov/ehs/ism/ucb_lbl_partnership_3_15_04.pdf.

u. Telecommuting Workers

- Complete and submit a LBNL "Agreement and Authorization for Telecommuting" form for their supervisor's and Division's authorization. This form is available on the Human Resources website.
- Employees are responsible for maintaining their off-site workspace in a safe condition, free from hazards to persons and equipment. If computer equipment will be used as part of the telecommuting function, the following activities must be completed and documented using the "Agreement and Authorization for Telecommuting" form and returning a copy to the supervisor and the ETA Safety Manager.
  - Complete the Ergonomics Self Assessment (EHS0059) training.
  - Conduct an ergonomic self-assessment of the immediate telecommuting work area.
  - Acquire and install the necessary ergonomic accessories identified in the self-assessment to assure the telecommuting work area provides controls against ergonomic risk exposures.

v. Workers Working Alone

- ETA personnel are not allowed to work alone when the hazards associated with their work could incapacitate them to such a degree that they cannot "self-rescue" themselves or activate emergency services. Example hazards include:

- Work involving exposed live electrical circuits >50V or 5mA.
- Work with >2L of highly corrosive liquids.
- Work with pyrophoric materials outside a glove box.
- Quenching water reactive materials such as sodium.
- Work with highly toxic incapacitating chemicals.
- Changing toxic gas cylinders.
- Use of stationary power tools such as a drill press.
- Use of fall arrest or fall restraint equipment on elevated work surfaces.
- Use of aerial lifts, boom lifts, or scissor lifts.
- Entry into permit required confined spaces.

- The Working Alone Policy is implemented through the WPC Activity Manager system. Work is assessed to identify activities where the severity of mitigated hazards may prevent workers from self-rescuing or activating emergency services in the event of an accident. Authorizations for the identified work activities place restrictions on working alone.
- Work Activity Leads may also determine that a working alone restriction is necessary for individual workers where a one-time task is not covered by their assigned Activity.
- **Working Accompanied** occurs when:
  - There is a second person within sight or earshot
  - The second person is available, agrees to, and understands his or her responsibilities
  - If the second person has to leave the area, the activity is considered to be Working Alone, and must terminate if prohibited in the Work Authorization.
  - See RPM-ES&H Work Alone Policy or further details.

6. ETA Safety Committee

The ETA Safety Committee consists of the following personnel:

- Committee Chair (Scientist appointed by the Associate Laboratory Director)
- Area Deputy, Operations (Ex-Officio)
- ETA Safety Manager (Ex-Officio)
- Buildings and Urban Systems Department Representatives (2 members appointed by the BTUS Division Director)
- Energy Analysis and Environmental Impacts Department Representatives (2 members appointed by the EAEI Division Director)
- Energy Storage and Distributed Resources Department Representatives (2 members appointed by the ESDR Division Director)
- Cyclotron Road Division Representative
- Area Administrative Staff Representative
- EH&S Division Liaison (Ex-Officio)
- ETA Building Emergency Team Coordinator (Ex-Officio)
- ETA Electrical Safety Officer (Ex-Officio)

Other optional participants as needed: Division Directors, Division Deputies for Operations, DOE-BSO Representative, Human Resources Representative, Office of Contract Assurance Representative, EH&S Division Subject Matter Experts, any interested ETA personnel.

The Safety Committee meets at least every other month or more often if issues warrant. The primary responsibilities of the Safety Committee are:

- Review available division safety data, identify trends and suggest appropriate corrective actions
- Assist in the development and implementation of effective environmental, safety and health (ES&H) programs.
- Consult on any proposed changes in safety and health policies, practices, and procedures.
- Provide feedback on ETA safety program strategic planning
- Act as a problem-solving group to help with the identification and control of hazards.
- Provide oversight of the ETA Self Assessment program
- Review annually and provide input to the update of the ETA ISM Plan
- Encourage feedback and participation from all individuals within the division with regard to health and safety related ideas, problems, and solutions

All safety committee meetings will be documented with meeting minutes. The meeting minutes will include a list of attendees and a listing of action items identified. The Safety Committee Chair is responsible for ensuring meeting minutes are generated and distributed to all Safety Committee Members, the Division Director, Department Heads, and Deputy Department Heads for Research Operations. The meeting minutes are also made available to ETA employees by posting on the ETA Safety Website. See Attachment 1 for the "Safety Committee Charter".

Safety Advisory Committee (SAC) Representative

LBNL's Safety Advisory Committee (SAC) performs research for and makes recommendations to the Laboratory Director on the development and implementation of Environment, Safety & Health (ES&H) policy, guidelines, codes and regulatory interpretation. It conducts peer reviews of special safety problems and provides recommendations for possible solutions if requested to do so by the Laboratory Director. The ETA representative to the SAC is selected by the Associate Laboratory Director and is typically a researcher from one of the divisions.

7. Description of Work and Associated Hazards

ETA staff performs office work, laboratory work (wet and dry), and off-site fieldwork. The following is a summary of the general hazards associated with these types of work:

ETA Work Type	Hazards
Laboratory Work- Dry Lab	• Electrical and mechanical hazards • Elevated work locations • Ergonomic hazards • Hand tool use • Soldering • Slip trip fall hazards
Laboratory Work- Wet Lab	• Biohazards • Class 3B and 4 lasers • Compressed gases • Cryogenic liquids • Electrical and mechanical hazards

	• Ergonomics hazards • Flammable gases • Hazardous chemicals • Hazardous gases • Hot surfaces • Ionizing radiation • Engineered nanomaterial • Radioactive materials • Reactive metals • Slip trip fall hazards
FLEXLAB	• Electrical and mechanical hazards • Elevated work locations • Confined spaces • Hand tool use • Soldering • Slip trip fall hazards
Machine Shops	• Compressed gases • Electrical and mechanical hazards • Flammable gases • Hand tool use • Machine tools and equipment • Welding and soldering
Office Work	• Ergonomic hazards • Slip trip fall hazards • Office equipment electrical hazards
Off-Site Field Work	• Compressed gases • Electrical and mechanical hazards • Elevated work locations • Ergonomic hazards • Hand tool use • Hot/cold climates • Wildlife • Traffic hazards • Transportation of Hazardous Materials (limited)

8. Work Planning and Control- Activity Manager System

All work must be authorized before it is performed. Work authorization has two distinct components. First, the work activities must be planned, reviewed and authorized. Second, individual workers must be then be assigned to work activities, properly trained, and authorized before they can proceed with work. The primary Work Planning and Control (WPC) process used by ETA is called the "Activity Manager" system. In order to meet Integrated Management System principles, the Activity Manager system allows personnel to:

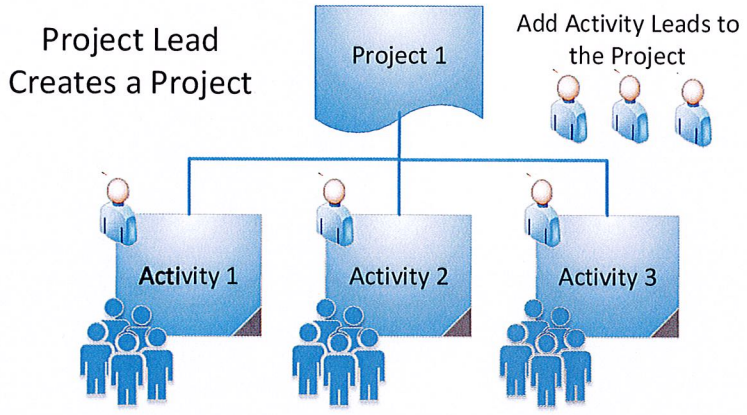
- Define the scope of work that will be performed
- Identify the hazards associated with the work

- Identify the controls necessary for the hazards
- Authorize the work activity
- Assign and authorize workers to perform the work activities

Project Leads are assigned to oversee all ETA work. The Project Leads are Managers, Principal Investigators, or Supervisors. Project Leads organize their work into Projects with one or more associated Work Activities. The Project Lead maintains overall control and responsibility for each Work Activity within their Project. Work Activity Leads are assigned for each Work Activity. They define the work, identify the hazards, and implement the controls associated with the Work Activity. The Activity Lead also assigns and authorizes workers to perform work.

Work Activities are authorized following a risk-based approach. Work Activities involving low or moderate hazards (Level 1 and 2) are authorized by ETA line management. Work Activities involving higher hazards (Level 3) requires concurrence of the EH&S Division in addition to ETA line management authorization.

Workers are authorized by Work Activity Leads at a level commensurate with their knowledge and skill level given the particular hazards associated with their assigned Work Activity. Workers may be authorized to work under direct supervision only, to work unsupervised but not alone, or to work alone. Once assigned to a Work Activity, the worker will review, accept and follow the conditions and controls listed. The worker can perform work only for which they are authorized and qualified.



WPC processes are specified in PUB-3000 Chapter 6 "Work Planning and Control."
To access the on-line "Activity Manager" system, go to: Activity Manager. WPC information resource tools, and training materials for Project Leads and Activity Leads is also available at: Work Planning and Control (WPC) website

9. Other Work Authorizations

There are other types of work authorizations not included in the Work Planning and Control "Activity Manager" system that are required at LBNL depending on the type of work being performed. These include:

a. Energized Electrical Work Permit- required for any work that might involve worker exposure to live, energized sources above 50 volts. The Facilities Division can coordinate any electrical work if needed.
b. Generally Licensed Source Authorization (GLA)- Sources exempt from NRC regulation, which require an LBNL authorization. Includes internal calibration sources, static eliminators, gas chromatographs, and electron capture devices.
c. Hot Work Permit- required for activities such as welding, cutting or grinding that could produce sparks. Call (510) 486-6015 for a same-day hot work permit.
d. Human Subjects- Research involving human subjects or human derived data or tissues must have a protocol reviewed and approved by the Human Subjects Committee (HSC).
e. Lock-Out/Tag-Out Permit- required for any subcontractor work requiring the shutdown and control of hazardous energies.
f. Penetration Permit- required for the penetration of any ground, wall or other surfaces greater than 1-5/8 inches.
g. Radiation Work Authorization (RWA)- used to establish radiological controls for intended work activities and research projects. The RWA informs workers of area radiological conditions (or potential conditions), limitations, entry requirements, engineering and administrative controls and provides a mechanism to relate worker exposure to specific work activities.
h. Subcontractor Job Hazard Analysis (SJHA)- required for all "hands-on" work performed by subcontractors/vendors. See this link for a complete list of SJHA's assigned to ETA sub-contractors.

In some cases, external authorizations (regulatory permits) may be required as specified in PUB-3000 Chapter 11 "Environmental Protection."

10. Identification and Assessment of Hazards

There are a number of ways that ETA identifies and assesses potential ES&H hazards. This is accomplished through inspections, walkthroughs, self-assessments, and peer reviews.

Inspections and Walkthroughs

This includes regular inspections of ETA work areas and authorized work activities. They are summarized as follows:

Type	Purpose	Frequency	Who	Documents
Satellite Accumulation Area (SAA)	Ensure that hazardous wastes are properly stored, identified, and disposed within storage time limits	Quarterly	ETA Safety Manager, Waste Generator Assistant, Lab Safety Lead	SAA Inspection Check sheet
Lab Area Inspection	Maintain good safety and health practices in each lab, review lab records	Quarterly	Lab Safety Lead/PI	ETA Log for Safety Walkthroughs
Level 3 Work Activity	Walk through area covered by Work	Annual	ETA Safety Manager, EH&S	Updated Activity in

Renewal	Activity to ensure all hazards are identified/updated		Liaison, PI	Activity Manager
Division Director Walkthrough	Promote safety culture, ensure areas meet LBNL and ETA safety expectations	Annual	Division Director, Deputy Directors, Associate Laboratory Director, ETA Safety Manager, EH&S Division Liaison	Management Checklist
Self - Assessment Inspection	Walkthrough all ETA areas to identify key ES&H weaknesses and strengths.	Annual	Safety Committee	Self-Assessment Plan
Ergonomics Assessment	Address personnel discomfort due to work station set-up	On request	ETA Ergonomics Advocates, EH&S Division Ergonomics Assessors	Ergonomic Assessment Form
Electrical Safety Assessment	Ensure ETA equipment is maintained in good condition and safe work practices are followed	Annual	ETA Electrical Safety Officer	Report to Electrical AHJ

All inspections must be documented with the date, personnel involved, areas inspected, and findings. Any issues identified that require follow-up or further tracking should be entered into the CATS (Corrective Action Tracking System). For ergonomic assessment follow-up items, go to the Ergonomics Database

Annual Division Self-Assessments

The division self-assessment is a continuous process that evaluates ETA's worker safety, impacts to the environment, and the effectiveness of this Integrated Safety Management Plan. Each year, an Area Self-Assessment Plan is prepared that identifies 2-3 selected focus areas to be evaluated, the methodologies to be used, persons responsible, and evaluation timelines. As each focus area is completed, it is summarized in a Self-Assessment Report and submitted to the Office of Contractor Assurance (OCA). The Division Self-Assessment Plan and past Self-Assessment Reports can be found on the ETA Safety Website.

New Project Review

In order to identify appropriate authorizations of planned research projects, ETA Principal Investigators should complete an "ETA Project Safety Review" form and submit it to the ETA Safety Manager at the time of proposal submission. This form is available on the ETA Safety Website or through the ETA Safety Manager. The ETA Safety Manager will review the submitted ETA Project Safety Review form and determine what safety documentation or other authorizations

will be required in order to perform the work safely. These requirements will be communicated to the requestor.

ES&H Peer Review

ETA periodically participates in the Safety Advisory Committee's ES&H peer review that evaluates implementation of Integrated Safety Management Systems for the Associate Laboratory Director. The peer review consists of individuals selected from outside ETA that focus on areas of concern that are typically high-level management issues.

11. Qualification and Training

The supervisor will determine the requisite qualifications for all their employees, students, contractors, affiliates and visitors to function safely and in an environmentally responsible manner. Most of the safety training requirements are pre-determined through assignment to one or more Work Activities in the Activity Manager system. Until such safety qualifications have been established and satisfied, individuals will only be allowed to work under the supervision of a qualified employee. An exception to this work under supervision rule is for any training related to a formal authorization that must be completed before any related work can be done under the authorization. Qualifications include skills, knowledge, training and certifications required by law or by Laboratory policy.

The employee's Training Profile shows training courses that are required and recommended, and whether the requirements have been met. The employee, visitor, or affiliate completes his/her training assignments when notified by automated email reminders. The supervisor ensures that the employee's required training is completed in a timely manner. New employees are assigned into Work Planning and Control "Work Activities" before beginning work, and complete all required training within 30 days. For access to training records, log into the LBNL training system: Berkeley Lab Training

Job-specific EH&S training may include on-the-job training (OJT), mentoring, hazard-specific training, or training given off site by another facility or organization. OJT is training conducted and evaluated in the work environment through interaction between line management and their staff. It is used to supplement general EH&S training to provide detailed instructions and controls for performing a specific task or operation. Written documentation that describes the training and the means to evaluate successful completion should be kept by the supervisor. OJT record keeping is a line management responsibility.

See PUB-3000, Chapter 24 "EH&S Training" for a detailed description of the LBNL training program and requirements. Go to the Berkeley Lab Training website for course descriptions and links to on-line training courses offered as well as registration for classroom training courses.

A summary of qualification and training requirements for various functions within ETA is as follows:

Work Type	Training
Managers, Supervisors	EHS0042- Implementing Safety for Supervisors BLI0117- Supervisor Responsibilities at LBL
All Employees- Staff, Affiliates, Post Doc,	EHS0470- General Employee Radiation Training

Students	(GERT) LBL0010- Safety, Emergency Preparedness, and Trafficking Persons EHS0059- Initial Ergonomic Self Assessment for Computer Users BLI0701- New Employee Briefing
ETA Safety Manager	EHS0802- Reporting Adverse ES&H Occurrences in ORPS EHS0027- Effective Safety Walk Around EHS0381- Electrical Equipment Surveyor EHS0277- Confined Space Permit Writer EHS0536- Switching for Non-QEW's
Building Emergency Response Team	EHS0145- First Responder EHS0154- Building Emergency Team Training EHS0116- First Aid Training EHS0123- Cardiopulmonary Resuscitation (CPR) EHS0520/EHS0522- Fire Extinguisher Training
Building Manager	EHS0156- Building Manager Orientation EHS0536- Switching for Non-QEW's
Qualified Electrical Worker (QEW-1)	EHS0370- Lock-Out/Tag-Out for Authorized Persons EHS0380- Electrical Gloves and Tools EHS0268- Introduction to NFPA 70E EHS0537- Electrical Injuries and Emergency Response EHS0539- QEW 1 Provisional Approval EHS0540- Electrical Safety Basics EHS0541- Shock Protection EHS0544- QEW 1 Practical Certification EHS0545- AHJ Approval
Ergonomic Advocates	EHS0061- Ergo Advocate Training
Safety Committee	ETA Safety Committee Orientation Training (ppt slides)
Specific Hazards based on assigned Work Activity- Chemicals, Lasers, Radiation, Elevated Work, etc.	See Berkeley Lab Training website for specific requirements. Typical courses for ETA personnel include: EHS0058- Ergonomic Self-Assessment EHS0062- Work Smart Ergonomics (lifting) EHS0170- Cryogen Safety EHS0171- Pressure Safety EHS0243- Soldering Awareness EHS0260- Electrical Safety for Non-QEW Personnel EHS0276- Fall Protection EHS0278- Ladder Safety EHS0288- Laser Eye Exam EHS0302- Laser Safety

	EHS0310- Respirator Safety EHS0344- Safe Handling of Nanoscale Material EHS0346- CMS Web Appication EHS0348- Chemical Hygiene and Safety EHS0520/522- Fire Extinguisher Safety EHS0535- Hot Work Permit EHS0604- Hazardous Waste Generator EHS0471- Radiation Worker 1 EHS0475- X-Ray Awareness EHS0657- Self Transport of Hazardous Materials EHS0740- Human Subjects Research

Some work activities also require medical surveillance or pre-qualification prior to performing certain types of hazardous work. See the LBNL Health Services Clinical Services website for specifics regarding medical surveillance requirements. Activities that require medical surveillance include the following:

- Class 3B and 4 Laser Use (includes eye examination)
- Respirator Use (includes face piece fit testing)
- High Noise Areas (includes hearing evaluation)
- New Hire Physical (Voluntary)

12. Communications and Feedback

There are a number of ways to communicate safety and health information to the ETA personnel. This is accomplished through:

a. ETA Safety Website
b. Building Bulletin Boards
c. Departmental and Division Employee Meetings
d. Division Director and Department Head Safety Walkthroughs
e. ETA "Safety Alerts" notices. See: http://eta-ehs.lbl.gov/content/safety-alerts
f. ETA Safety Metrics. See: http://eta-ehs.lbl.gov/content/safety-metrics-and-performance
g. Safety Committee Meeting Minutes. See: http://eta-ehs.lbl.gov/safety-committee-meeting-minutes
h. ETA "Safety Topics" training slides. See: http://eta-ehs.lbl.gov/content/job-training-ojt
i. Berkeley Lab Training
j. LBNL Electrical Safety Website
k. Emergency Response Guide
l. Industrial Hygiene Exposure Monitoring Data
m. Safety Data Sheet (SDS) database
n. "1 Minute for Safety" information sheets. See: EHS Division "1 Minute 4 Safety" database

Personnel are encouraged to report unsafe conditions to their supervisor without fear of reprisal. Personnel are also encouraged to ask questions or voice safety concerns at employee meetings. LBNL has established a means of reporting safety concerns through the "Safety Concerns" website. In addition, concerns can be emailed to: safetyconcerns@lbl.gov or by calling X5514.

ETA personnel are recognized for positive contributions to the ETA safety program through the following means:

a. Safety Spot Awards. See: http://eta-ehs.lbl.gov/content/spot-awards
b. Safety Hero cards. See: http://hero.lbl.gov/
c. Performance review feedback from supervisor

13. Controls

There are a number of processes and programs available to proactively control hazards in the workplace. These are fully described in PUB-3000, the "EH&S Manual". The specific sections are referenced and linked for each control for more detailed information. Controls for hazards commonly found in ETA include:

a. **Biohazards**- see PUB-3000, Chapter 26 "Bio-Safety"
b. **Chemicals**- see PUB-3000, Chapter 45 "Chemical Hygiene and Safety Plan"
c. **Cryogenics**- see PUB-3000, Chapter 7 "Pressure Safety and Cryogenics"
d. **Electrical**- see PUB-3000, Chapter 8 "Electrical Safety"
e. **Engineered Nanomaterials** – see PUB-3000, Chapter 45, Work Process S – Specific Controls for Engineered Nanomaterials
f. **Ergonomics**- see PUB-3000, Chapter 17 "Ergonomics"
g. **Exposure Monitoring**- see PUB-3000, Chapter 4 "Exposure Assessment"
h. **Fall Protection**- see PUB-3000, Chapter 30 "Fall Protection Program"
i. **Fire Prevention and Protection**- see PUB-3000, Chapter 12 "Fire Prevention and Protection"
j. **Gases**- see PUB-3000, Chapter 13 "Gases"
k. **Hoods and Ventilation**- see PUB-3000, Chapter 4.6 "Ventilation, Hoods, and HEPA Filters"
l. **Hazardous Waste**- see PUB-3000, Chapter 20 "Waste Management"
m. **Human Subjects**- see PUB-3000, Chapter 22 "Research with Human and Animal Subjects"
n. **Ionizing Radiation**- see PUB-3000, Chapter 21 "Radiation Safety"
o. **Lasers**- see PUB-3000, Chapter16 "Laser Safety"
p. **Lock-Out/Tag-Out**- see PUB-3000, Chapter 16 "Lock-out/Tag-out and Verification"
q. **Medical Surveillance**- see PUB-3000, Chapter 3 "Health Services"
r. **Non-Ionizing Radiation**- see PUB-3000, Chapter 4.4 "Non-Ionizing Radiation"
s. **Personal Protective Equipment**- see PUB-3000, Chapter 19 "Personal Protective Equipment"

14. Accident Investigation

Accident reporting and investigation requirements are detailed in PUB-3000, Chapter 5.1 "Incident Reviewing and Reporting.

a. Injuries

All occupational injuries and illness cases must be reported promptly to your supervisor and LBNL Health Services. Typically, the supervisor will direct the injured employee to report to Health Services for evaluation and treatment. When the injured employee does not or cannot report to Health Services at the time of injury, the supervisor must promptly notify Health Services of the injury. Health Services will initiate the Incident Review process by notifying the supervisor, ETA Safety Manager, and the Health & Safety Department. Health Services will also initiate any required reports for workers' compensation purposes.

In the event of off-hour injuries, report to the Fire Department **X911** for first-aid treatment or for transport to off-site medical care. The Fire Department will notify Health Services to initiate all required reviews and reporting.

For work-related injuries that occur off site or away from the Laboratory, the injured employee or supervisor must notify Health Services as soon as possible. Also notify Health Services of injuries to student employees who were treated at the UC Berkeley Tang Center.

Certain injuries may be reportable to DOE and/or BSO as required by the "Occurrence Reporting and Processing System" (ORPS). There are levels of reporting and reporting timelines depending on the severity of the injury. See PUB-3000, Chapter 15 "Occurrence Reporting" for specific details.

b. Near Miss
A near miss is an event that could have caused a serious injury or illness, but didn't. Reporting these types of events helps to identify hazards and facilitate safety improvements in the workplace. A near miss should be reported to your supervisor or the ETA Safety Manager for follow-up. If necessary, a Corrective Action Tracking System (CATS) report should be issued to prevent a recurrence.

c. Lessons Learned
In the course of our work, we may experience either improved work practices or adverse situations that may benefit others if they are made aware. When we share "lessons learned," it can prevent a repeat incident or increase the likelihood of a positive outcome. ETA employees are encouraged to share ES&H lessons learned with their fellow workers and their supervisor. Go to Lessons Learned and Best Practices to submit a lesson learned.

15. Non-Conformance

There are several processes available for identifying and correcting EHS issues, hazards or compliance matters. These include the following:

a. Corrective Action Tracking System (CATS)- This system is used for tracking of corrective actions associated with accidents, near miss events, inspections, walkthroughs, and other ES&H related issues. A corrective action request is electronically generated in the CATS system by going to: Corrective Action Tracking System. The request is assigned and tracked until resolution.

b. Occurrence Reporting and Processing System (ORPS)- Significant incidents and occurrences related to the environment, health, and safety must be reported to Lab management and the Department of Energy in a prompt manner. There are various types of reportable occurrences and reporting levels. See PUB-3000, Chapter 15 "Occurrence Reporting" for specific details.

c. Work Request- Some safety issues can be resolved by using the formal Facilities work request system. Some safety issues can be given priority and addressed quickly. The Facilities Work Request Center can be accessed by going to: Facilities Work Request System

d. Safety Concerns- Employees are encouraged to report unsafe conditions. LBNL has established a means of reporting safety concerns through the "Safety Concerns" website. In addition, concerns can be emailed to: safetyconcerns@lbl.gov or by calling X5514.

e. Stop Work- All ETA personnel, sub-contractors, and participating guests are responsible for immediately stopping work activities that are considered to be an imminent danger and reporting them by calling **X6999**. The "stop work" policy can be found at: Stop Work

16. Performance Monitoring

The ETA Safety Manager will track key safety and health metrics to monitor the effectiveness of this ISM Plan. The following ETA data will be tracked on a monthly basis:

- Accidents, Incidents, Near Miss
- Safety Training status
- Work Planning and Control Project/Activity status
- Inspection Status
- Open Corrective Action Requests
- Open Ergonomic Assessments and Follow-up Actions
- Significant Safety Events and Lessons Learned

The ETA Safety Manager will distribute the key safety and health metrics results to the Associate Laboratory Director, all Safety Committee members, and ETA Division Directors and Deputy Directors on a monthly basis. The metrics will also be communicated to ETA employees by posting to the ETA Safety Website, central bulletin boards in ETA occupied buildings, ETA Safety website, and presented at periodic employee meetings.

17. Emergency Response

All ETA personnel must understand how to call for emergency assistance if needed and how to safely evacuate their work area/building. See PUB-3000, Chapter 9 "Emergency Services" for details on LBNL emergency requirements. ETA requirements are as follows:

a. Emergency Notification
   - For life threatening events such as: fire, chemical spill, or serious injury immediately call **911.**
   - For non-life threatening emergencies, immediately call **X6999** or **(510) 486-6999.**
   - Emergency Response Guides are posted in all ETA building hallways and lab areas.
   - Building occupants are notified of emergencies through activation of the building fire alarm system, public address system, and the "Lab Alert" system.
   - LBNL maintains a voluntary cell phone emergency alert broadcast system called "Lab Alert". To register go to: Lab Alert.

b. Building Evacuation
   - Building evacuation location maps are posted in all ETA building lobbies.
   - In the event of fire alarms, immediately evacuate the building.
   - Evacuate immediately.
   - Walk do not run.
   - Do not use elevators.
   - Report to the building assembly area.

- Do not leave the assembly area unless instructed to do so.

c. Fire Extinguishers
   - Fire extinguishers are located near all ETA buildings and lab areas.
   - Employees who have completed EHS0520 and EHS0522 "Fire Extinguisher Safety" are authorized to extinguish a small fire.
   - Fire extinguishers must be properly maintained and readily accessible.
   - Class D fire extinguishers are available near lab areas that use water reactive metals.

d. Chemical Spill Clean-up
   - The following requirements must be met prior to attempting a chemical spill cleanup:
     - High school students and interns are NOT permitted to perform cleanups.
     - There is no potential release to the environment.
     - There are no personal injuries resulting from the spill.
     - The chemical hazards are known.
     - Clean-up procedures are known and proper cleanup materials are available.
     - Proper personal protective equipment is available and worn.
     - The spill can be cleaned-up by two people in one hour or less.
     - All personnel have completed EHS0348 "Chemical Hygiene and Safety Training".
     - The spill does not involve elemental mercury or beryllium.

   - If chemical spill cleanup requirements are not met or if there are any doubts about the ability to effectively cleanup the spill, then leave the area immediately.
     - Close the door.
     - Call X**911** for fire department assistance.
     - Stay close by and control access.
     - Post the entrance with a warning label stating "SPILL- DO NOT ENTER"
   - ETA chemical usage areas must have adequate spill cleanup supplies available for addressing small spills.
   - Follow S.W.I.M.S for responding to chemical spills:
     Stop and Think
     Warn Others
     Isolate the Area
     Monitor Yourself Carefully and Completely
     Stay In or Near the Area Until Help Arrives

e. Emergency Shower/Eyewash
   - Emergency eyewash/shower stations are located in ETA lab areas where hazardous materials are used.
   - Emergency eyewash/shower stations must be properly maintained and readily accessible.
   - In the event of chemical contact, rinse the exposed area for a minimum of 15 minutes. Seek immediate medical attention.

f. Building Emergency Teams (BET)
   - ETA maintains Building Emergency Team members in Buildings 62, 70, and 90.

- Each BET member completes EHS0154 "Emergency Team Training", EHS0520 "Fire Extinguisher Part 1", EHS0522 "Fire Extinguisher Part 2" and EHS 0116 "First Aid" training. Cardiopulmonary (CPR) training is optional.
- The BET will assist employees when evacuating the building and ensure that a headcount is taken.
- The BET will assist any emergency responders from the fire department.

g. Continuity of Operations Plan (COOP)
   - ETA maintains a Continuity of Operations Plan (COOP) for planning in the event of a major disruption in operations such as significant earthquake, fire, etc.
   - The COOP contains key ETA personnel contact information.
   - The COOP will be reviewed and updated annually under the direction of the Area Deputy Director of Operations.

18. ES&H Resources

Principal Investigators are expected to incorporate appropriate resources for ES&H needs in all research proposals, to include provisions for safety equipment, permits, training, maintenance, waste disposal, and facilities modifications.

ETA Integrated Safety Management Plan (4/22/16)
Approved By:

Date: 5/18/16

Ramamoorthy Ramesh
ETA Associate Laboratory Director

Mary Sidney Date: 4/25/16

Mary Sidney
ETA Area Deputy, Operations

Date: 4/28/16

Mary Ann Piette
Building Technology and Urban Systems (BTUS) Division Director

Charles Goldman Date: 5/2/16

Chuck Goldman
Energy Analysis and Environmental Impacts (EAEI) Division Director

Robert Kostelecky for Ravi Prasher Date: 5/12/16

Ravi Prasher
Energy Storage and Distributed Resources (ESDR) Division Director

Date: 5/13/16

Ilan Gur
Cyclotron Road (CYR) Division Director

Ron H. Scholtz Date: 4/22/16

Ron Scholtz, CHMM
ETA Safety Manager

ATTACHMENT 1
ETA Safety Committee Charter

Mission Statement:
The mission of the Energy Technologies Area (ETA) Safety Committee is to develop and promote a healthy and safe work environment for all ETA employees and visitors. It will encourage and promote safety awareness and participation. It will monitor and continually improve ETA safety performance in a proactive manner.

Responsibilities:
- Review available ETA safety data, identify trends and suggest appropriate corrective actions
- Assist in the development and implementation of effective health and safety programs.
- Consult on any proposed changes in safety and health policies, practices, and procedures.
- Coordinate strategic planning of the ETA safety program.
- Act as a problem-solving group to help with the identification and control of hazards.
- Oversight of the ETA Self Assessment program
- Annual review and update of the ETA ISM Plan
- Encourage feedback and participation from all individuals within the division with regard to health and safety related ideas, problems, and solutions

Membership:
- Committee Chair (Scientist appointed by the Associate Laboratory Director)
- Area Deputy, Operations (Ex-Officio)
- Area Deputy, Science and Technology (Ex-Officio)
- ETA Safety Manager (Ex-Officio)
- Buildings and Urban Systems Department Representatives (2 members appointed by the BTUS Division Director)
- Energy Analysis and Environmental Impacts Department Representatives (2 members appointed by the EAEI Division Director)
- Energy and Distributed Resources Department Representatives (2 members appointed by the ESDR Division Director)
- Area Administrative Staff Representative
- EH&S Division Liaison (Ex-Officio)
- ETA Building Emergency Team Coordinator (Ex-Officio)
- ETA Electrical Safety Officer (Ex-Officio)

Other optional participants as needed: Division Directors, Division Deputies for Operations, DOE-BSO Representative, Human Resources Representative, Office of Contract Assurance Representative, EH&S Division Subject Matter Experts, any interested ETA personnel.

Appointed members will serve a term of 2 years. Ex-Officio members will serve continually on the committee. All members are expected to regularly participate in the committee meetings and activities. The time commitment for each committee member is estimated at between 12-15 hours per year.

Meeting Frequency and Format:
The committee will meet at least once every other month (bimonthly). The committee chair may call additional meetings as needed. The committee chair will establish a meeting agenda and distribute to all members prior to each meeting. All meetings will be documented with meeting minutes. The meeting minutes will document attendance and any action items or recommendations generated by the participants. Minutes are distributed to all committee members, Associate Laboratory Director, all Division Directors, Division Deputies, and any other meeting participants.

Training and Awareness:
All new committee members will receive a brief training orientation on safety committee responsibilities. The committee chair will be responsible for ensuring this training occurs

ATTACHMENT 2
Useful Safety and Health Links

1 Minute 4 Safety Database: http://www.lbl.gov/ehs/safety_minute/index.shtml
Accidents/Injury Reporting: https://iswiprod.lbl.gov/saar/Login.aspx
Accident Statistics: http://www.lbl.gov/ehs/safety/accidentStatistics.shtml
Activity Manager website: https://wpc-am.lbl.gov/
Chemical Management System (CMS) website: https://cms.lbl.gov/jsp/general/features.jsp
Corrective Action Tracking System (CATS) website: https://isswprod.lbl.gov/cats/login.aspx
Department of Energy website: http://energy.gov/
ETA Activity Manager/Training Guide: http://eetd-ehs.lbl.gov/content/job-hazard-analysis-jha
ETA Safety Website: http://eta-safety.lbl.gov
EHS Division Website: http://www.lbl.gov/ehs/
EHS Subject Matter Experts: http://www.lbl.gov/ehs/html/subject_matter.shtml
EHS training website: http://training.lbl.gov
Electrical Safety website: http://electricalsafety.lbl.gov/
Emergency Response Guides: http://www.lbl.gov/ehs/ep/erg/index.shtml
Emergency Services website: http://www.lbl.gov/ehs/ppls/
Ergonomics Evaluation website: https://ehswprod.lbl.gov/Ergo/Login.aspx
Ergonomics Product Catalog: http://www.lbl.gov/ehs/ergo/catalog/chairs.shtml
Exposure Monitoring Data: http://www.lbl.gov/ehs/ih/
Facilities Work Request System: https://workrequest.lbl.gov/jsp/workreq_login.jsp
Hazardous Waste website: http://www.lbl.gov/ehs/waste/index.shtml
Health Services website: http://www.lbl.gov/ehs/health_services/
Human Subjects website: http://www.lbl.gov/ehs/health_services/harc/hsc.shtml
Lab Alert System: https://commons.lbl.gov/display/itdivision/LabAlert+-+Emergency+Broadcast+Service
Laser Safety website: https://lms.lbl.gov/index.jsp
LBNL Buildings Seismic Information: https://commons.lbl.gov/display/fac/Seismic+Status
Lessons Learned and Best Practices website: https://isswprod.lbl.gov/lessonslearned/login.aspx
Personal Protective Equipment information: http://www.lbl.gov/ehs/safety/ppe.shtml
PUB-3000 Health and Safety Manual: http://www.lbl.gov/ehs/pub3000/
Radiation Safety website: https://ehswprod.lbl.gov/rpg/
Safety Datasheet (SDS) website: http://www.ucmsds.com/?X
Subcontractor sJHA website: https://sjha.lbl.gov.aspx
Ventilation database: https://ehswprod.lbl.gov/ventilation/Login.aspx
Work Planning and Control Procedure: http://www2.lbl.gov/ehs/pub3000/CH6-quickstart.html